

WHAT IS CLAIMED IS:

1. An image composition method for generating a strobe composite image from a plurality of frames of a moving image, the method comprising:

5           selecting a first frame from the plurality of frames of the moving image;

          determining a plurality of second frames relating to the first frame;

10           setting a superposing manner for the strobe composite image; and

          generating the strobe composite image by superposing the plurality of second frames in accordance with the set superposing manner.

2. A method according to claim 1, wherein  
15           determining the plurality of second frames includes determining the second frames based on a reference frame whose time corresponds to the time obtained by shifting the time of the first frame a certain time.

3. A method according to claim 1, wherein  
20           selecting the first frame includes selecting a frame corresponding to one of start and end frames upon superposing the plurality of second frames.

4. A method according to claim 1, further comprising:

25           selecting a third frame from the moving image, and  
          wherein determining the plurality of second frames includes determining the second frames based on the

time of the first frame, and the time of the third frame.

5. A method according to claim 1, wherein selecting the first frame includes:

5 selecting a frame of interest in which a user is interested;

displaying the frame of interest and the frame of the near the frame of interest; and

10 determining the frame of interest as the first frame.

6. A method according to claim 1, wherein setting the superposing manner includes setting a manner of superposing a frame at a later time on a frame at an earlier time in turn, or a manner of superposing a frame at an earlier time on a frame at a later time in turn.

15 7. A method according to claim 6, further comprising:

20 recording setup information of the superposing manner.

8. A method according to claim 7, further comprising:

generating another strobe composite image by applying the setup information to another moving image.

25 9. A method according to claim 1, further comprising:

displaying the strobe composite image;

designating one of the plurality of second frames as a designated frame; and

changing a superposing order of the designated frame to an order different from a superposing order before designation.

5 10. An image composition method comprising:

inputting a moving image;

holding latest N frames (N is a natural number) of the moving image;

10 accepting a one-click-instruction from a user; and generating a strobe composite image by superposing the latest N frames in response to the one-click-instruction.

15 11. An image composition method comprising:

inputting a moving image;

holding latest N frames (N is a natural number) of the moving image;

detecting from the latest N frames a feature frame that conforms to a strobe image composition condition;

20 and

generating a strobe composite image by superposing the latest N frames when the feature frame is detected.

12. A method according to claim 11, further comprising:

25 making a user select one of a plurality of image composition parameter values which can be used for generation of the strobe composite image.

13. A method according to claim 11, further comprising:

generating a plurality of strobe composite images by respectively applying a plurality of image composition parameter values which can be used for generation of the strobe composite images; and

displaying the plurality of strobe composite images and making a user select one of the strobe composite images.

14. An image composition method comprising:

inputting a first moving image;

inputting a second moving image;

inputting answer object regions for respective frames of the first moving image;

extracting a plurality of answer object images from the respective frames of the first moving image using the answer object regions;

generating an answer strobe composite image in which the plurality of answer object images are superposed;

determining an extraction parameter which depends on the answer strobe composite image;

extracting object images from respective frames of the second moving image using the extraction parameter; and

generating a strobe composite image in which the object images extracted from the respective frames of

the second moving image are superposed.

15. A method according to claim 14, wherein determining the extraction parameter comprises:

(a) detecting temporary object regions from the respective frames of the first moving image using a temporary extraction parameter;

(b) extracting a plurality of temporary object images from the respective frames of the first moving image using the temporary object regions;

10 (c) generating a temporary strobe composite image in which the plurality of temporary object images are superposed;

(d) calculating an error between the answer strobe composite image and the temporary strobe composite image; and

15 repeating (a) to (d) while changing the temporary extraction parameter, and determining the temporary extraction parameter which minimizes the error as the extraction parameter.

20 16. An image composition method for generating a strobe composite image by superposing a plurality of frames of a moving image, the method comprising:

displaying respective frames of the moving image sequentially;

25 selecting a reference frame from the respective frames displayed;

determining a plurality of frames to be subjected

to strobe composition based on the reference frame; and generating a strobe composite image by superposing the plurality of determined frames.

17. A method according to claim 16, further comprising:

setting a time interval, between the respective frames, for displaying the respective frames.

18. A method according to claim 16, further comprising:

10 determining a switching frame at which a superposing manner is switched, and

wherein generating the strobe composition image includes switching the superposing manner between an overlay manner and an underlay manner before and 15 after the switching frame.

19. An image composition method comprising:

determining frames corresponding to start points of strobe composition;

20 generating strobe composite images by superposing frames in turn based on each of the start points; and displaying the strobe composite images sequentially.

20. A method according to claim 19, further comprising:

25 setting a time interval for sequentially displaying the strobe composite images.

21. A method according to claim 19, further

comprising:

determining a switching frame at which  
a superposing manner is switched, and  
wherein generating the strobe composite images  
5 includes switching the superposing manner between  
an overlay manner and an underlay manner before and  
after the switching frame.

22. A method according to claim 19, further  
comprising:

10 determining a plurality of frames to be subjected  
to strobe composition.

23. An image composition method for generating  
a strobe composite image by superposing a plurality of  
frames of a moving image, the method comprising:

15 inputting a feature point of an object;  
obtaining a locus pattern by tracing the feature  
point in the strobe composite image; and  
analyzing a motion pattern of the object on the  
basis of the obtained locus pattern.

20 24. An image composition method for generating

a strobe composite image by superposing a plurality of  
frames of a moving image, the method comprising:

extracting an image of an object region from  
a currently captured frame in real time;

25 designating a reference frame for the strobe  
composite image; and

generating the strobe composite image by

superposing the image of the object region on the reference frame.

25. An image composition apparatus for generating a strobe composite image from a plurality of frames of a moving image, the apparatus comprising:

a selection unit configured to select a first frame from the plurality of frames of the moving image;

a determination unit configured to determine a plurality of second frames related to the first frame;

10 and

a setting unit configured to set a superposing manner used upon superposing the plurality of second frames.

26. An image composition apparatus, comprising:

15 a generation unit configured to generate a first strobe composite image by superposing a plurality of frames of a moving image;

a display unit configured to display the first strobe composite image;

20 a designation unit configured to designate one of the plurality of frames as a designated frame; and

a change unit configured to change a superposing order of the designated frame to an order different from a superposing order before designation.

25. An image composition apparatus for generating a strobe composite image from a plurality of frames of a moving image, the apparatus comprising:

a selection unit configured to select a first frame from the frames of the moving image;

a determination unit configured to determine a plurality of composition objective frames based on 5 the time obtained by shifting the time of the first frame a certain time;

a setting unit configured to set a superposing manner of the composition objective frames;

10 a storage unit configured to store the superposing manner; and

a generation unit configured to generate another strobe composite image by applying the superposing manner stored in the storage unit to another moving image.

15 28. An image composition apparatus, comprising:

an input unit configured to input a moving image;

an image holding unit configured to hold latest N frames (N is a natural number) of the moving image;

20 an accepting unit configured to accept a one-click-instruction from a user; and

an image composition unit configured to generate a strobe composite image from the latest N frames stored in the image holding unit in response to the one-click-instruction.

25 29. An image composition apparatus, comprising:

a unit configured to input a first moving image and a second moving image;

a unit configured to input answer object regions for respective frames of the first moving image;

a unit configured to extract a plurality of answer object images from the respective frames of the first moving image using the answer object regions;

a unit configured to generate an answer strobe composite image in which the plurality of answer object images are superposed;

a unit configured to determine an extraction parameter which depends on the answer strobe composite image;

a unit configured to extract object regions from respective frames of the second moving image using the extraction parameter; and

a unit configured to generate a strobe composite image in which the object images extracted from the respective frames of the second moving image are superposed.

30. An image composition apparatus for generating a strobe composite image by superposing a plurality of frames of a moving image, comprising:

a display unit configured to sequentially display respective frames of the moving image;

a reference frame selection unit configured to select a reference frame from the respective frames displayed;

an objective frame determination unit configured

to determine a plurality of frames to be subjected to strobe composition based on the reference frame; and  
a strobe composition unit configured to generate a strobe composite image by superposing the plurality 5 of frames determined by the objective frame determination unit.

31. An image composition apparatus, comprising:  
a start point determination unit configured to determine frames corresponding to start points of 10 strobe composition from a plurality of frames of a moving image;  
a generation unit configured to generate strobe composite images by superposing frames in turn based on each of the start points; and  
15 a display unit configured to sequentially display the strobe composite images.

32. An image composition apparatus for generating a strobe composite image by superposing a plurality of frames of a moving image, comprising:  
20 an input unit configured to input a feature point of an object;  
a feature point tracing unit configured to obtain a locus pattern by tracing the feature point in the strobe composite image; and  
25 a motion pattern analysis unit configured to analyze a motion pattern of the object on the basis of the obtained locus pattern.

33. An image composition apparatus for generating a strobe composite image by superposing a plurality of frames of a moving image, comprising:

5        an object region extraction unit configured to extract an image of an object region from a currently captured frame in real time;

15        a reference frame designation unit configured to designate a reference frame for the strobe composite image; and

20        a generation unit configured to generate the strobe composite image by superposing the image of the object region on the reference frame.

34. A program product comprising a computer usable medium having computer readable program code means for causing a computer to generate a strobe composite image from a plurality of frames of a moving image, the computer readable program code means in the computer program product comprising:

20        program code means for causing a computer to select a first frame from the plurality of the moving image;

15        program code means for causing a computer to determine a plurality of second frames relating to the first frame; and

25        program code means for causing a computer to set a superposing manner for the strobe composite image

          program code means for causing a computer to

generate the strobe composite image by superposing the plurality of second frames in accordance with the set superposing manner.

35. A program product comprising a computer usable medium having computer readable program code means, the computer readable program code means in the computer program product comprising:

program code means for causing a computer to generate a first strobe composite image by superposing a plurality of frames of a moving image;

program code means for causing a computer to display the first strobe composite image;

program code means for causing a computer to designate at least one of the plurality of image frames as a designated frame; and

program code means for causing a computer to change a superposing order of the designated frame to an order different from a superposing order before designation.

36. A program product comprising a computer usable medium having computer readable program code means for causing a computer to generate a strobe composite image from a plurality of frames of a moving image, the computer readable program code means in the computer program product comprising:

program code means for causing a computer to select a first frame from the frames of the moving

image;

program code means for causing a computer to determine a plurality of composition objective frames based on the time obtained by shifting the time of the first frame a certain time;

program code means for causing a computer to set a superposing manner of the composition objective frames;

program code means for causing a computer to store the superposing manner; and

program code means for causing a computer to generate another strobe composite image by applying the superposing manner stored in the storage unit to another moving image.

37. A program product comprising a computer usable medium having computer readable program code means, the computer readable program code means in the computer program product comprising:

program code means for causing a computer to input a moving image;

program code means for causing a computer to hold latest N frames (N is a natural number) of the moving image;

program code means for causing a computer to accept a one-click-instruction from a user; and

program code means for causing a computer to composite a strobe composite image by superposing the latest N frames in response to the

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one-click-instruction.

38. A program product comprising a computer usable medium having computer readable program code means, the computer readable program code means in the computer 5 program product comprising:

program code means for causing a computer to input a first moving image and a second moving image;

program code means for causing a computer to input answer object regions for respective frames of the 10 first moving image;

program code means for causing a computer to extract a plurality of answer object images from the respective frames of the first moving image using the answer object regions;

15 program code means for causing a computer to generate an answer strobe composite image in which the plurality of answer object images are superposed;

program code means for causing a computer to determine an extraction parameter which depends on the 20 answer strobe composite image;

program code means for causing a computer to extract object images from respective frames of the second moving image using the extraction parameter; and

25 program code means for causing a computer to generate a strobe composite image in which the object images extracted from the respective frames of the second moving image.

39. A program product comprising a computer usable medium having computer readable program code means for causing a computer to generate a strobe composite image by superposing a plurality of frames of a moving image,  
5 the computer readable program code means in the computer program product comprising:

program code means for causing a computer to sequentially display respective frames of the moving image;

10 program code means for causing a computer to select a reference frame from the respective frames displayed;

15 program code means for causing a computer to determine a plurality of frames to be subjected to strobe composition based on the reference frame; and

program code means for causing a computer to generate a strobe composite image by superposing the plurality of determined frames.

40. A program product comprising a computer usable medium having computer readable program code means for causing a computer to generate a plurality of strobe composite images, the computer readable program code means in the computer program product comprising:

25 program code means for causing a computer to determine a frame corresponding to start points of strobe composition from a plurality of frames of a moving image;

program code means for causing a computer to generate the strobe composite images by superposing frames in turn based on each of the determined start points; and

5 program code means for causing a computer to sequentially display the generated strobe composite images.

41. A program product comprising a computer usable medium having computer readable program code means for causing a computer to generate a strobe composite image by superposing a plurality of frames of a moving image, the computer readable program code means in the computer program product comprising:

15 program code means for causing a computer to input a feature point of an object;

program code means for causing a computer to obtain a locus pattern by tracing the feature point in the strobe composite image; and

20 program code means for causing a computer to analyze a motion pattern of the object on the basis of the obtained locus pattern.

42. A program product comprising a computer usable medium having computer readable program code means for causing a computer to generate a strobe composite image by superposing a plurality of frames of a moving image, the computer readable program code means in the computer program product comprising:

program code means for causing a computer to extract an image of an object region from a currently captured frame in real time;

5 program code means for causing a computer to designate a reference frame for the strobe composite image; and

program code means for causing a computer to generate the strobe composite image by superposing the image of the object region on the reference frame.

10 43. A computer system comprising:

a processor;

a memory accessible to the processor; and

a software application stored on the memory,

wherein the software application comprises:

15 program code means for inputting a moving image;

program code means for holding latest N frames

(N is a natural number) of the moving image;

program code means for accepting a one-click-instruction from a user; and

20 program code means for generating a strobe

composite image by superposing the stored latest N

frames in response to the one-click-instruction.

44. A computer system comprising:

a processor;

25 a memory accessible to the processor; and

a software application stored on the memory,

wherein the software application comprises:

program code means for inputting a moving image;

program code means for holding latest N frames

(N is a natural number) of the moving image;

program code means for detecting from the latest N

5 frames a feature frame that conforms to a strobe image  
composition condition; and

program code means for generating a strobe

composite image by superposing the latest N frames when  
the feature frame is detected.

10 45. A method according to claim 1, further  
comprising:

displaying the strobe composite image;

designating one of the plurality of second frames  
as a designated frame; and

15 changing the superposing manner after the  
designated frame to a manner different from the  
superposing manner before the designated frame.